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SHARP 21LS-90S SERVICE MANUAL

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SHARP®

SERVICE MANUAL

SE0021LS90S00
Issued: 17th Feb. 2004

AK-44 CHASSIS

PAL B/G / SECAM L/L', B/G, D/K SYSTEM COLOUR TELEVISION

MODEL 21LS-90S

In the interests of user safety (required by safety regulations in some countries) the set should be restored to its original condition and only parts identical to those specified should be used.

In order to service the model 21LS-90S, refer to the AK-44 Chassis Service Manual (SE00AK44CHA00).

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SHARP CORPORATION

This document has been published to be used for after sales service only.

SERVICE MANUAL UPDATE LOG SHEET

Technical Report No. Technical Bulletin No.	Cause / Solution	Part No.	Page No.	Application Data /Serial No.

Use this page to keep any special servicing information as Technical Report (Bulletin), Technical Information, etc.
If only part number changes are required, just change part number directly the part number in the Parts Listing Section.
If you need more information, please refer to the Technical Report (Bulletin).

ELECTRICAL SPECIFICATIONS

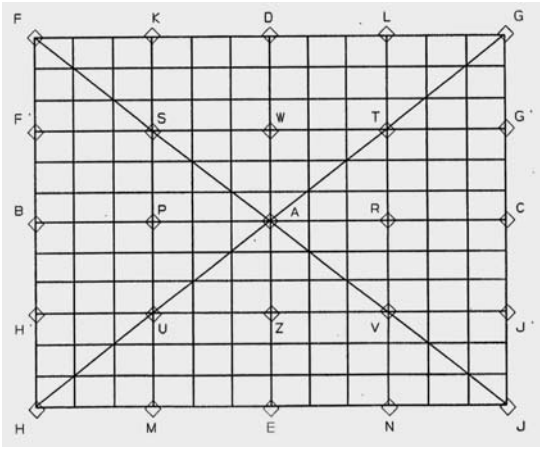
•Power Input ..... 220V-240 Volts AC 50 Hz

•Power Consumption
Normal Operation (Method IEC60107) ..... 64 W
Stand-by Operation ..... < 3 W

•Audio Power Output Rating (MPO) / Impedance
Internal Left Speaker ..... 4 W, 16 Ω
Internal Right Speaker ..... 4 W, 16 Ω

•Speakers
Speaker elliptic (2 pcs) ..... 50 x 120 mm

•Convergence (Maximum Misconvergence)



AREA	mm
A	0.3
BC	1.0
DE	1.0
FGHJ	1.3
KLMN	1.2
F'G'H'J'	1.2
STUV	1.1

•Picture Intermediate frequency
L' 33.9MHz
L, B/G, D/K 38.9MHz

•Sound Carrier Trap
L' 40.4MHz
L, D/K 32.4MHz
B/G 33.4MHz

•Adjacent Sound Carrier Trap
L' 32.4MHz
L, D/K, B/G 40.4MHz

•Adjacent Picture Carrier Trap
L' 41.9MHz
L, D/K 30.9MHz
B/G 31.9MHz

•Aerial Input Impedance
VHF/UHF ..... 75 ohm Unbalanced

•Tuning Ranges ..... 48.25MHz thru 855.25 MHz
VHF: S1 - S41 CH (Hiperband)
E2 - E12 / F2 - F10
UHF: E21 - E69

•White Level
Apply the rated voltage at the rated frequency to the TV set, while it is receiving full white pattern RF signal of 60 dB/μV from its RF input via the pattern generator.
Turn all picture controls to maximum value. Measure the colour temperatures at the center of the screen by using the colour analyzer.

X=0.290 ± 0.015 Y=0.300 ± 0.015

Specifications are subject to change without prior notice.

MODEL DESTINATION (Operation Manual Languages)

21LS-90S: Deutsch, Français, Nederlands.

WARNING

The chassis in this receiver is partially hot. Use an isolation transformer between the line cord plug and power receptacle, when servicing this chassis.
To prevent electric shock, do not remove cover. No user-serviceable parts inside. Refer servicing to qualified service personnel.

IMPORTANT SERVICING NOTES

Only qualified service personnel are allowed to carry out maintenance and repair of this receiver.

Servicing of High Voltage System and CRT

It is important that the static charge is removed from the high voltage system when carrying out work on the receiver. This can be achieved by connecting a 10K resistor (with a suitably insulated lead) from the CRT cavity connector to the CRT ground tag. This must be carried out with the AC supply disconnected from the receiver.

Note the following:

- The CRT in this receiver employs Integral Implosion Protection.
- If the CRT has to be changed it MUST be replaced with the correct type for continued safe working.
- DO NOT lift the CRT by its neck.
- When handing the CRT, ensure that shatterproof goggles are worn.
- Ensure that the CRT is discharge before handling.

X-Ray

This receiver is designed to keep any x-ray emission to an absolute minimum. Some fault conditions and servicing procedures may produce potentially hazardous x-ray radiation levels. This is a problem when in close proximity to the receiver for long periods of time. To reduce any risks associated with this, please observe the following precautions:

1. When undertaking any servicing on this chassis, DO NOT increase the EHT to more than 29.5 KV, (at a instantaneous beam current of 1150 μA).

2. Ensure that during normal operation the EHT does not exceed 26.2 KV (at a beam current of 1150 μA). This level has been preset in the factory. Always check that this level has not been exceeded after carrying out any repair on the receiver.

3. DO NOT replace the CRT with any other type than that specified in the parts listing as this may cause excessive x-ray radiation.

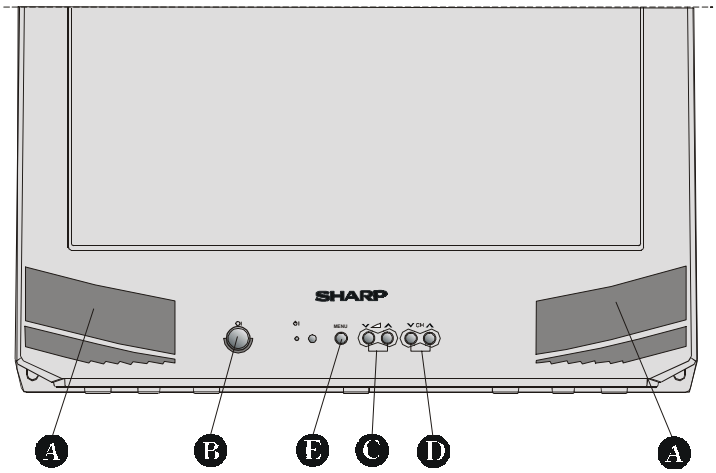
Before returning the receiver to the customer

In addition to the above checks, the following should also be carried out before returning the receiver to the customer.

1. Inspect all the leads to ensure that they are dressed correctly and that they are not obstructed or pinched by any other parts.

2. Ensure that all protective devices are in good condition. These will include nonmetallic control knobs, insulating fish papers, cabinets backs, compartment covers or shields, mechanical insulators, etc.

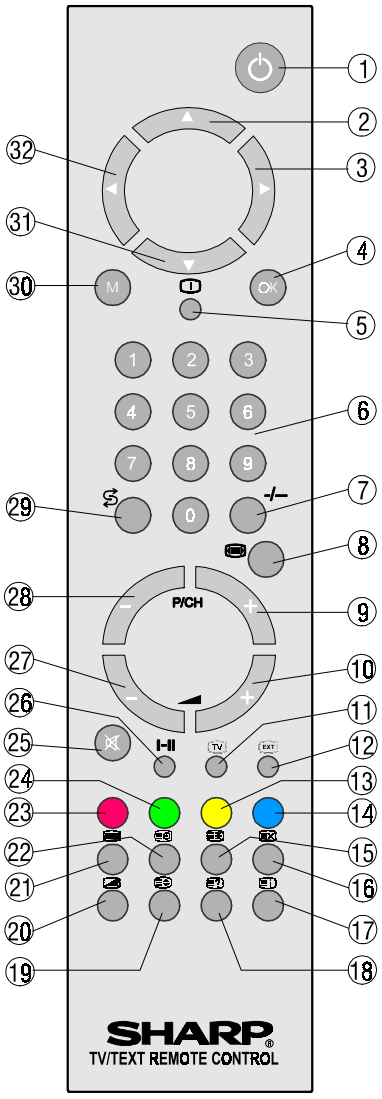
CONTROLS & TERMINALS



Ⓐ Speakers (left + right)
Ⓑ ⏻ = Power On / Off
Ⓒ ∨ ◢ ∧ = Volume -/+
Ⓓ ∨ **CH** ∧ = Program -/+
Ⓔ **MENU** = Menu

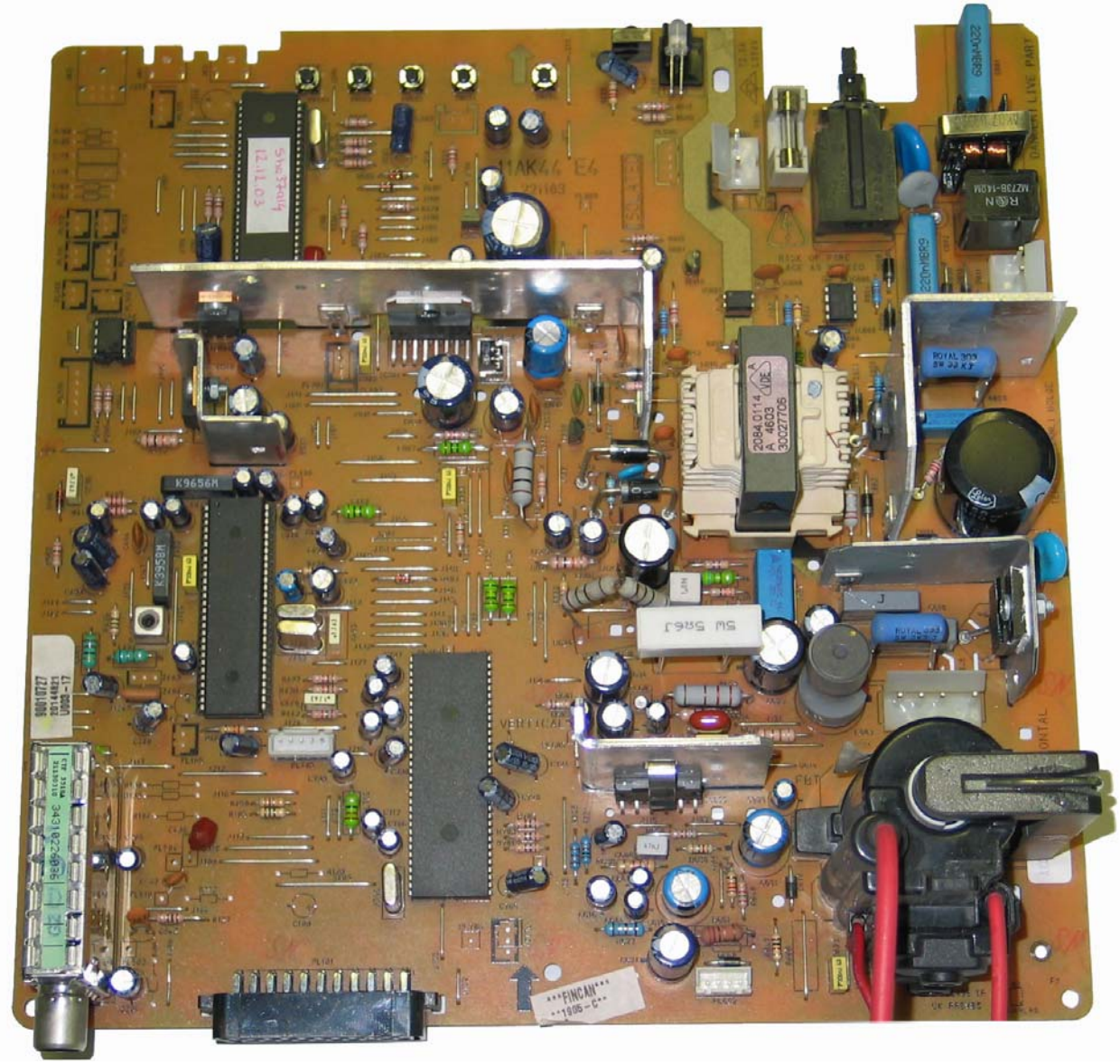
REMOTE CONTROL

① ⏻ = Stand By
② △ = Cursor Up
③ ▷ = Cursor Right
④ OK = OK
⑤ ⓘ = Info (Program Menu)
⑥ **0 - 9** = Direct Program
⑦ **-/--** = Double Digit
⑧ = Wide mode button
⑨ **P/CH+** = Program +
⑩ ◢ **+** = Volume +
⑪ TV = TV / Quit Menu
⑫ EXT = EXT button
(**SCART, F- AV, RGB**)
⑬ **Yellow** = Feature Menu
⑭ **Blue** = Installation Menu
⑮ = Hold
⑯ = Update
⑰ = Index Page
⑱ = Reveal
⑲ = Expand
⑳ = Mix
㉑ = Teletext
㉒ = Time
㉓ **Red** = Sound Menu
㉔ **Green** = Picture Menu
㉕ = Mute
㉖ **I-II** = Mono/Stereo - Dual I-II
㉗ **-** ◢ = - Volume
㉘ **- P/CH** = -Program
㉙ = Flash back button
㉚ **M** = Menu
㉛ ▽ = Cursor Down
㉜ ◁ = Cursor Left

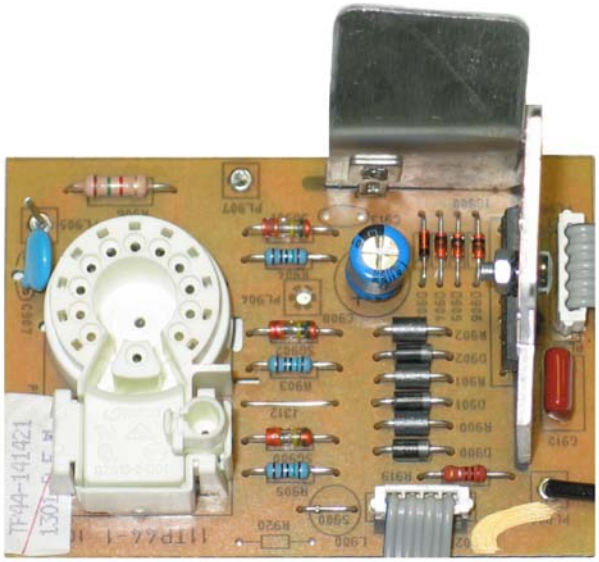


CHASSIS LAYOUT

Mother Unit



CRT Unit



PARTS LISTING

REPLACEMENT PARTS

Replacement parts which have special safety characteristics are identified in this manual. Electrical components having such features are identified by △ in the Replacement Parts Listing.
The use of a substitute replacement part which does not have the same safety characteristics as the factory recommended is not permitted.
Replacement parts not shown in this service manual may create shock fire, or other hazards.

HOW TO ORDER REPLACEMENT PARTS

To have your order completed promptly and correctly please supply the following information.

1. MODEL NUMBER 2. REF. NO.
3. PART NO. (*) 4. DESCRIPTION
5. CODE 6. QUANTITY

(*) When ordering any part, a "V" should be added before the Part No.

	REF No.	(*) PARTS	DESCRIPTION	SN CODE	EX CODE
			PICTURE TUBE		
⚠	.	30002749	21" CPT TUBE SAFE	BQ	CG
	.	30028645	21" DEG COIL&EARTH CB. SAFE WO/UL SHARP	AG	AS
⚠			**TUNER**		
	TU201	30009637	TUNER WSP (PLL) 38.9 MK2 - BATCH	AR	BC
			INTEGRATED CIRCUITS		
	IC101	30018063	IC HT48RA0A OTP	AF	AR
	IC118	30001506	IC TL431	AC	AH
	IC301	30011824	IC TDA7266	AF	AR
	IC403	30026922	IC STV2248H (SHRINK56)	AR	BC
	IC502	30001669	PREAMPLIFIER TFMS1380	AD	AM
	IC600	30015306	IC TDA8174AW	AD	AN
	IC700	30014359	IC MSP3400G SDIP64	AS	BD
	IC800	30011968	IC SMPS MC44608 DIP8	AF	AQ
	IC801	30015087	IC SAFE OPTOCOUPLER TCET1102G	AA	AE
	IC803	30001500	IC LM7808	AC	AH
	IC804	30001622	IC 7805 (1A)	AB	AF
	IC806	30014346	IC 78L05 TO-92 (100mA)	AA	AE
			TRANSISTORS		
	Q100	30001453	TR BC337	AA	AC
	Q601	30013656	TR POWER STX112-AP	AA	AE
	Q804	30001454	TR BC548B	AA	AC
			DIODES		
	D100	30002733	LED INFRARED IR333	AA	AC
	D106	30001377	DIODE ZENER 33V UZT 33B	AB	AF
	D407	30001284	DIODE 1N4148 0.15A/100V 0.5A	AA	AB
	D505	30001284	DIODE 1N4148 0.15A/100V 0.5A	AA	AB
	D506	30001284	DIODE 1N4148 0.15A/100V 0.5A	AA	AB
	D509	30001279	LED RED/GREEN LTL293SJ	AC	AH
	D602	30001329	DIODE 1N4007 1A/1000V 30A	AA	AB
	D608	30001318	DIODE BA159 1A/800V 20A	AA	AB
	D609	30001318	DIODE BA159 1A/800V 20A	AA	AB
	D610	30001318	DIODE BA159 1A/800V 20A	AA	AB
	D614	30001318	DIODE BA159 1A/800V 20A	AA	AB
	D701	30001369	DIODE ZENER 3.6V ZPD	AA	AB
	D800	30001318	DIODE BA159 1A/800V 20A	AA	AB
	D801	30001347	DIODE ZENER 8.2V	AA	AB
	D802	30001318	DIODE BA159 1A/800V 20A	AA	AB
	D803	30001315	DIODE BYD33D 1A/200V 20A	AA	AE
	D804	30001318	DIODE BA159 1A/800V 20A	AA	AB
	D805	30001315	DIODE BYD33D 1A/200V 20A	AA	AE
	D806	30001315	DIODE BYD33D 1A/200V 20A	AA	AE
	D808	30007681	DIODE UF5407 3A/800V 150A	AB	AF
	D809	30001329	DIODE 1N4007 1A/1000V 30A	AA	AB
	D811	30001329	DIODE 1N4007 1A/1000V 30A	AA	AB
	D813	30001329	DIODE 1N4007 1A/1000V 30A	AA	AB
	D837	30001329	DIODE 1N4007 1A/1000V 30A	AA	AB
	D838	30001329	DIODE 1N4007 1A/1000V 30A	AA	AB
	D889	30001384	TR MCR22-6	AB	AG
	D890	30001329	DIODE 1N4007 1A/1000V 30A	AA	AB
	D893	30001318	DIODE BA159 1A/800V 20A	AA	AB
	D894	30001318	DIODE BA159 1A/800V 20A	AA	AB
	D900	30001318	DIODE BA159 1A/800V 20A	AA	AB
	D901	30001318	DIODE BA159 1A/800V 20A	AA	AB
	D902	30001318	DIODE BA159 1A/800V 20A	AA	AB
	D903	30001344	DIODE ZENER 6.2V 1/2W	AA	AB
	D904	30001349	DIODE ZENER 11V	AA	AB
	D905	30001349	DIODE ZENER 11V	AA	AB
	D906	30001349	DIODE ZENER 11V	AA	AB
			PACKAGED CIRCUITS		
	X100	30002852	XTAL REZ 455KHZ	AA	AD
	X401	30001749	XTAL 4.433619 MHZ (AK15)	AC	AK
	X402	30015592	XTAL 3.579545 (WO/LOAD CAP)	AB	AG
	X403	30000074	CAP MKT 100NF 63V J	AA	AC
	X501	30002851	XTAL 4MHZ L.C=30PF	AC	AH
	X700	30001756	XTAL 18.432MHZ	AE	AP
			COILS		
	L101	30013412	FERRITE BEAD (0805) MMZ2012Y152B	AA	AA
	L110	30013412	FERRITE BEAD (0805) MMZ2012Y152B	AA	AA
	L111	30013412	FERRITE BEAD (0805) MMZ2012Y152B	AA	AA
	L112	30013412	FERRITE BEAD (0805) MMZ2012Y152B	AA	AA
	L113	30013412	FERRITE BEAD (0805) MMZ2012Y152B	AA	AA
	L114	30013412	FERRITE BEAD (0805) MMZ2012Y152B	AA	AA
	L201	30001979	FIXED COIL 1UH Q45 M-A	AA	AB
	L210	30001971	FERRITE BEAT (805) BLM21A601S	AA	AD
	L211	30001971	FERRITE BEAT (805) BLM21A601S	AA	AD
	L401	30001971	FERRITE BEAT (805) BLM21A601S	AA	AD
	L402	30001992	FIXED COIL 10UH Q65 K-A	AA	AB
	L403	30001971	FERRITE BEAT (805) BLM21A601S	AA	AD
	L404	30001990	FIXED COIL 6.8UH Q75 K	AA	AB
	L406	30001971	FERRITE BEAT (805) BLM21A601S	AA	AD
	L407	30002002	FIXED COIL 47UH Q60 K	AA	AB
	L601	30001990	FIXED COIL 6.8UH Q75 K	AA	AB
	L603	30002149	LINEARITY COIL 50UH (06-06A)	AE	AN
	L700	30001971	FERRITE BEAT (805) BLM21A601S	AA	AD
	L701	30001971	FERRITE BEAT (805) BLM21A601S	AA	AD
	L702	30001996	FIXED COIL 22UH Q40 K	AA	AB
	L703	30001979	FIXED COIL 1UH Q45 M-A	AA	AB
	L704	30001979	FIXED COIL 1UH Q45 M-A	AA	AB
	L802	30001971	FERRITE BEAT (805) BLM21A601S	AA	AD
	L803	30001984	FIXED COIL 2.2UH Q55 M-AX	AA	AB
	L805	30001971	FERRITE BEAT (805) BLM21A601S	AA	AD
	L806	30001971	FERRITE BEAT (805) BLM21A601S	AA	AD
	L807	30001992	FIXED COIL 10UH Q65 K-A	AA	AB
			CERAMIC FILTERS		
	Z401	30012545	FILTER SAW K9656M	AG	AR
	Z402	30014261	FILTER SAW K3958M	AF	AR
	Z404	30001724	FILTER SER TRAP TPS 5.5MHZ	AB	AF
			TRANSFORMERS		
⚠	TR601	30017788	TRF FBT SAFE 90ø (AK30,AK36 LAYER TYPE)	AT	BE
⚠	TR801	30002100	LINE FILTER SAFE 2*27MH	AC	AH
⚠	TR802	30027706	TRF SMPS AK44 90° (170-270V) Audio=12V	AF	AQ
			CAPACITORS		
	C100	30000352	CAP EL 100UF 16V M	AA	AB
	C201	30000400	CAP EL 47UF 50V M	AA	AB
	C205	30000371	CAP EL 22UF 50V M	AA	AB
	C300	30000400	CAP EL 47UF 50V M	AA	AB

	REF No.	PARTS	DESCRIPTION	SN CODE	EX CODE
	C302	30000092	CAP MKT 220NF 63V J	AA	AD
	C305	30000092	CAP MKT 220NF 63V J	AA	AD
	C404	30000225	CAP CER 220PF 50V J SL	AA	AB
	C409	30000345	CAP EL 10UF 50V M	AA	AB
	C410	30000384	CAP EL 2.2UF 50V M	AA	AB
	C411	30000345	CAP EL 10UF 50V M	AA	AB
	C413	30000362	CAP EL 1UF 50V M	AA	AB
	C416	30000362	CAP EL 1UF 50V M	AA	AB
	C417	30000362	CAP EL 1UF 50V M	AA	AB
	C419	30000413	CAP EL 4.7UF 50V M	AA	AB
	C420	30000100	CAP MKT 330NF 63V J	AA	AD
	C422	30000400	CAP EL 47UF 50V M	AA	AB
	C423	30000400	CAP EL 47UF 50V M	AA	AB
	C424	30000345	CAP EL 10UF 50V M	AA	AB
	C431	30000362	CAP EL 1UF 50V M	AA	AB
	C433	30000345	CAP EL 10UF 50V M	AA	AB
	C436	30000109	CAP MKT 470NF 63V J	AA	AD
	C440	30000074	CAP MKT 100NF 63V J	AA	AC
	C443	30000362	CAP EL 1UF 50V M	AA	AB
	C444	30000384	CAP EL 2.2UF 50V M	AA	AB
	C446	30000345	CAP EL 10UF 50V M	AA	AB
	C460	30000345	CAP EL 10UF 50V M	AA	AB
	C502	30000396	CAP EL 47UF 16V M	AA	AB
	C513	30000371	CAP EL 22UF 50V M	AA	AB
	C519	30000352	CAP EL 100UF 16V M	AA	AB
	C531	30000384	CAP EL 2.2UF 50V M	AA	AB
	C536	30000074	CAP MKT 100NF 63V J	AA	AC
	C541	30000109	CAP MKT 470NF 63V J	AA	AD
	C542	30000205	CAP CER 150PF 50V J SL	AA	AB
	C543	30000205	CAP CER 150PF 50V J SL	AA	AB
	C603	30000384	CAP EL 2.2UF 50V M	AA	AB
	C604	30000345	CAP EL 10UF 50V M	AA	AB
	C608	30000107	CAP MKT 47NF 250V J	AA	AD
	C610	30000355	CAP EL 100UF 50V M	AA	AB
	C611	30000092	CAP MKT 220NF 63V J	AA	AD
	C613	30000078	CAP MKT 1UF 100V M	AB	AF
	C615	30000359	CAP EL 1000UF 16V M	AA	AC
	C616	30000352	CAP EL 100UF 16V M	AA	AB
⚠	C618	30007100	CAP MKP SAFE 10NF 1600V %3.5	AA	AE
	C619	30000131	CAP MKP SAFE 100NF 250V J	AA	AB
	C624	30000350	CAP EL 10UF 250V M	AA	AD
⚠	C627	30000154	CAP MKP SAFE 390NF 250V J	AB	AG
	C628	30018380	CAP EL 3.3UF 160V M 105°	AA	AB
	C631	30000410	CAP EL 470UF 50V M	AB	AF
	C632	30000100	CAP MKT 330NF 63V J	AA	AD
	C633	30016085	CAP EL 10UF 63V 105°	AA	AB
	C634	30000409	CAP EL 470UF 25V M	AA	AD
	C635	30000100	CAP MKT 330NF 63V J	AA	AD
	C636	30000387	CAP EL 33UF 50V M	AA	AB
	C641	30000345	CAP EL 10UF 50V M	AA	AB
	C643	30000116	CAP MKT 68NF 63V J	AA	AC
	C644	30000362	CAP EL 1UF 50V M	AA	AB
	C645	30000352	CAP EL 100UF 16V M	AA	AB
	C705	30000345	CAP EL 10UF 50V M	AA	AB
	C706	30000345	CAP EL 10UF 50V M	AA	AB
	C712	30000345	CAP EL 10UF 50V M	AA	AB
	C720	30000345	CAP EL 10UF 50V M	AA	AB
	C724	30000345	CAP EL 10UF 50V M	AA	AB
	C730	30000393	CAP EL 3.3UF 50V M	AA	AB
	C733	30000345	CAP EL 10UF 50V M	AA	AB
	C734	30000345	CAP EL 10UF 50V M	AA	AB
	C736	30000345	CAP EL 10UF 50V M	AA	AB
	C737	30000371	CAP EL 22UF 50V M	AA	AB
	C738	30000371	CAP EL 22UF 50V M	AA	AB
⚠	C801	30000094	CAP MKT SAFE 220NF 275V M AC	AA	AB
⚠	C802	30000094	CAP MKT SAFE 220NF 275V M AC	AA	AB

	REF No.	PARTS	DESCRIPTION	SN CODE	EX CODE
	C803	30000433	CAP CER 1NF 1KV M B	AA	AB
	C805	30018085	CAP VAR SAFE 510V K MFCN14D511	AA	AD
	C806	30000433	CAP CER 1NF 1KV M B	AA	AB
	C808	30000295	CAP CER 100NF 50V Z F	AA	AB
	C809	30000420	CAP EL 150UF 400V M	AF	AQ
	C810	30000387	CAP EL 33UF 50V M	AA	AB
⚠	C811	30000161	CAP MKP SAFE 47NF 630V J	AB	AE
	C813	30000295	CAP CER 100NF 50V Z F	AA	AB
⚠	C816	30000440	CAP CER SAFE 2.2NF 4KV M	AA	AC
	C817	30000198	CAP CER 120PF 500V J SL	AA	AB
	C822	30007308	CAP CER 220PF 1KV K (PULSE)	AA	AD
	C824	30009208	CAP CER 470PF 1KV K (PULSE)	AA	AC
	C827	30000411	CAP EL 4700UF 16V M	AC	AH
	C828	30000295	CAP CER 100NF 50V Z F	AA	AB
	C829	30000359	CAP EL 1000UF 16V M	AA	AC
	C830	30000382	CAP EL 2200UF 16V M	AB	AF
	C832	30000295	CAP CER 100NF 50V Z F	AA	AB
	C833	30000407	CAP EL 470UF 16V M	AA	AC
	C834	30000295	CAP CER 100NF 50V Z F	AA	AB
	C836	30000431	CAP CER 100PF 1KV M	AA	AC
	C838	30000352	CAP EL 100UF 16V M	AA	AB
	C839	30000352	CAP EL 100UF 16V M	AA	AB
	C840	30000352	CAP EL 100UF 16V M	AA	AB
	C843	30000431	CAP CER 100PF 1KV M	AA	AC
	C848	30000352	CAP EL 100UF 16V M	AA	AB
	C849	30000352	CAP EL 100UF 16V M	AA	AB
	C850	30000352	CAP EL 100UF 16V M	AA	AB
	C855	30000407	CAP EL 470UF 16V M	AA	AC
	C858	30007308	CAP CER 220PF 1KV K (PULSE)	AA	AD
	C862	30000367	CAP EL 1UF 250V M	AA	AB
⚠	C864	30000440	CAP CER SAFE 2.2NF 4KV M	AA	AC
	C907	30000434	CAP CER 1NF 2KV K B	AA	AB
	C908	30000415	CAP EL 4.7UF 250V M	AA	AC
	C912	30000075	CAP MKT 100NF 250V K (DC)	AA	AD
			RESISTORS		
	R105	30000792	RES CF 1/4W 75R J	AA	AB
	R127	30000459	RES CF 1/4W 100R J	AA	AB
	R204	30000459	RES CF 1/4W 100R J	AA	AB
	R206	30000459	RES CF 1/4W 100R J	AA	AB
	R301	30000471	RES CF 1/4W 10K J	AA	AB
	R302	30000471	RES CF 1/4W 10K J	AA	AB
	R407	30000590	RES CF 1/4W 2.2K J	AA	AB
	R410	30000590	RES CF 1/4W 2.2K J	AA	AB
	R420	30000466	RES CF 1/4W 1K J	AA	AB
	R424	30000712	RES CF 1/4W 470R J	AA	AB
	R428	30000792	RES CF 1/4W 75R J	AA	AB
	R437	30000466	RES CF 1/4W 1K J	AA	AB
	R438	30000466	RES CF 1/4W 1K J	AA	AB
	R442	30000466	RES CF 1/4W 1K J	AA	AB
	R450	30000712	RES CF 1/4W 470R J	AA	AB
	R469	30000670	RES CF 1/4W 330K J	AA	AB
	R507	30000466	RES CF 1/4W 1K J	AA	AB
	R508	30000622	RES CF 1/4W 270R J	AA	AB
	R510	30000737	RES CF 1/4W 5.1K J	AA	AB
	R513	30000459	RES CF 1/4W 100R J	AA	AB
	R514	30000459	RES CF 1/4W 100R J	AA	AB
	R518	30000471	RES CF 1/4W 10K J	AA	AB
	R525	30000583	RES CF 1/4W 220R J	AA	AB
	R527	30000718	RES CF 1/4W 4.7K J	AA	AB
	R534	30000526	RES CF 1/4W 1.5K J	AA	AB
	R535	30000718	RES CF 1/4W 4.7K J	AA	AB
	R536	30000471	RES CF 1/4W 10K J	AA	AB
	R546	30000560	RES CF 1/4W 1.8K J	AA	AB
	R559	30000470	RES CF 1/2W 10K J	AA	AA
	R562	30000471	RES CF 1/4W 10K J	AA	AB

	REF No.	PARTS	DESCRIPTION	SN CODE	EX CODE
	R601	30000477	RES CF 1/4W 100K J	AA	AB
	R602	30000513	RES CF 1/4W 130K J	AA	AB
	R605	30000477	RES CF 1/4W 100K J	AA	AB
	R623	30000607	RES CF 1/4W 2.2R J	AA	AB
	R625	30000900	RES MF 1/4W 1.8K J	AA	AB
	R627	30000910	RES MF 1/2W 1.8R G	AA	AB
	R628	30000650	RES CF 1/4W 33R J	AA	AB
	R630	30000828	RES CF 1/4W 8.2M J	AA	AB
	R631	30000885	RES MF 1/4W 1.5K J	AA	AB
	R633	30000706	RES CF 1/4W 47R J	AA	AB
	R637	30000621	RES CF 1/2W 270R J	AA	AB
	R638	30000589	RES CF 1/2W 2.2K J	AA	AA
	R639	30000718	RES CF 1/4W 4.7K J	AA	AB
	R645	30001126	RES MO 3W 2.2K J	AA	AB
	R646	30000500	RES CF 1/4W 12K J	AA	AB
	R647	30000466	RES CF 1/4W 1K J	AA	AB
⚠	R648	30001215	RES FUSE SAFE 1W 1R J	AA	AC
	R649	30000801	RES CF 1/4W 7.5K J	AA	AA
	R650	30000744	RES CF 1/4W 560R J	AA	AB
	R654	30000705	RES CF 1/2W 47R J	AA	AB
	R655	30000705	RES CF 1/2W 47R J	AA	AB
	R658	30001077	RES MO 2W 10R J	AA	AC
	R659	30001123	RES MO 2W 220R J	AA	AC
	R662	30000712	RES CF 1/4W 470R J	AA	AB
	R663	30000459	RES CF 1/4W 100R J	AA	AB
	R701	30000459	RES CF 1/4W 100R J	AA	AB
	R703	30000459	RES CF 1/4W 100R J	AA	AB
	R705	30000459	RES CF 1/4W 100R J	AA	AB
	R801	30000982	RES MF 1/4W 4.7K J	AA	AA
	R804	30000504	RES CF 1/4W 120K J	AA	AB
	R805	30000843	RES MF 1/4W 10R J	AA	AA
	R806	30000982	RES MF 1/4W 4.7K J	AA	AA
	R807	30001130	RES MO 1/2W 0.22R J	AA	AB
⚠	R810	30001257	RES MG SAFE 1/2W 4.7M J	AA	AD
	R811	30000594	RES CF 1/4W 22K J	AA	AB
	R813	30000718	RES CF 1/4W 4.7K J	AA	AB
	R815	30000452	RES CF 1/4W 10R J	AA	AB
	R817	30001037	RES MF 1/4W 99K F	AA	AB
	R818	30000925	RES MF 1/4W 2.2K F	AA	AB
	R819	30000810	RES CF 1/4W 820R J	AA	AB
	R821	30000470	RES CF 1/2W 10K J	AA	AA
	R828	30001265	NTC MONITOR 10R/3A SCK-103	AA	AB
	R829	30000718	RES CF 1/4W 4.7K J	AA	AB
⚠	R836	30001224	RES FUSE SAFE 1/2W 0.22R J	AA	AB
	R900	30006712	FERRITE BEAD 3.5X4.7X0.8	AA	AB
	R901	30006712	FERRITE BEAD 3.5X4.7X0.9	AA	AB
	R902	30006712	FERRITE BEAD 3.5X4.7X0.10	AA	AB
	R903	30000886	RES MF 1/4W 1.5K F	AA	AB
	R904	30000886	RES MF 1/4W 1.5K F	AA	AB
	R905	30000886	RES MF 1/4W 1.5K F	AA	AB
	R906	30000525	RES CF 1/2W 1.5K J	AA	AB
	R919	30001213	RES FUSE 1/4W 1R J	AA	AA
			MISCELLANEOUS PARTS		
	.	20092581	CABLE ASSY.4/45 (HRZ&VER) IMPROVED NEW	AB	AF
	.	20141421	CRT B.ASSY.TP44-RF/SF (AK44)	AQ	BA
	.	20141673	CRT B.ASSY.TP44-OTO RF/SF (AK44)	AD	AN
	.	20144821	CHS.ASSY.44-531B2111312229	BH	BZ
	.	20144823	IC 24C08 U00315210210121102	AB	AE
	.	20151170	SPK.AS.2162 SHARP STR (AK44)	AH	AT
	.	20151171	SPK.AS.2162 SHARP (R) (AK44)	AE	AN
	.	20151172	SPK.AS.2162 SHARP (L) (AK44)	AE	AP
	.	20151304	POWER CORD ASSY.(2.4MT W/FTZ)(AK44SHARP)	AD	AM
	.	20157066	PR.IC.36/44-SHARP 36_44_A17	AW	BH
	.	30001386	TR MTP6N60E (PLASTIC)	AE	AP
	.	30001448	TR BU808DFI	AF	AQ

	REF No.	PARTS	DESCRIPTION	SN CODE	EX CODE
	.	30001731	FUSE SAFE 2.5A 250V 5*20MM	AA	AC
	.	30001793	CONN HOUSING 2P 7.5MM TOP	AA	AD
	.	30006987	IC 24C08 (WP)	AC	AH
	.	30007248	CONN HOUSING 4P 3.96MM TOP WHT	AA	AB
	.	30009366	DIODE UF5402 3A/200V 150A	AB	AF
	.	30009783	SOCKET IC 56P (SHRINK)	AC	AH
	.	30009784	SOCKET IC 8P (DIP)	AA	AB
	.	30014568	TERMINAL SSC 2000T	AA	AB
	.	30017855	CONN.ASSY.4/45 (HRZ&VER) IMPROVED NEW	AB	AF
	.	30018423	CNAS 2P/500 SIS W/BLK C+FER UL1007AWG24	AB	AF
	.	30018427	CNAS 2P/500 SPK SIS W/C+FER UL1007AWG24	AB	AF
	.	30025172	IC TDA6107JF/N3	AF	AQ
	.	30026834	PCB 11TP44-1	AB	AF
	.	30026954	PCB 11UK12	AB	AF
	.	30027392	SPEAKER 16R 4W F/R 50x90MM-21" SF SHARP	AE	AN
⚠	.	30028208	POWER CORD SAFE EURO 2.2M SHARP W/FILTER	AG	AT
	.	35000136	FUSE HOLDER TK79-A (GRAY)	AA	AD
⚠	F801	20000848	FUSE ASSY.TK79-A (2.5A)	AA	AD
	PL101	30015053	SOCKET SCART NEW TYPE	AB	AF
	PL301	30001829	CONN HEADER 2P 2.5MM TOP WHT SD	AA	AB
	PL302	30018454	CONN HEADER 2P 2.5MM TOP BLACK	AA	AA
	PL405	30006709	CONN HEADER 5P 2.5MM TOP WHT SD	AA	AB
	PL501	30001783	CONN HEADER 5P 2.5MM TOP BD	AA	AC
	PL503	30009085	CABLE 1P R2.6 35 W/CLIPS	AA	AC
	PL504	30019101	CABL 1P/350 DIS UL1672AWG22	AA	AB
	PL601	30001827	CONN HEADER 4P 5/7.5MM TOP WHT	AA	AD
	PL602	30006660	CONN HEADER 4P 2.5MM TOP WHT SD	AA	AB
	PL801	30001792	CONN HEADER 2P 7.5MM TOP WHT	AA	AC
	PL802	30001795	CONN HEADER 3P 5/7.5MM TOP WHT	AA	AC
	PL900	30016695	CNAS 5P/450 FLT W/C+CBLH UL2468AWG24	AB	AE
	PL902	30016694	CNAS 4P/450 FLT W/C+CBLH UL2468AWG24	AA	AE
⚠	PL903	30001855	SOCKET CRT SAFE NARROWNECK W/GND	AD	AM
	SG900	30000428	SPARK GAP 300V	AB	AG
	SG901	30000428	SPARK GAP 300V	AB	AG
	SG902	30000428	SPARK GAP 300V	AB	AG
	SW506	30016022	SWITCH TACT VERTICAL T&R	AA	AB
	SW507	30016022	SWITCH TACT VERTICAL T&R	AA	AB
	SW508	30016022	SWITCH TACT VERTICAL T&R	AA	AB
	SW509	30016022	SWITCH TACT VERTICAL T&R	AA	AB
	SW510	30016022	SWITCH TACT VERTICAL T&R	AA	AB
⚠	SW801	30017848	SWITCH SAFE ON/OFF 4A/128A JVC	AC	AH
⚠	TH800	30001268	THERMISTOR 3P	AD	AM
	VL405	30014048	ADJ.COIL VIF 44MHZ Q=64 C=39pF	AA	AE
			ARTWORK		
	.	20141197	SCR.ASSY.2162 (2SP)	AB	AF
	.	20143026	R/C 1548 SHARP (EKO2GRAY/I) (GRAY/S)	AM	AY
	.	20147245	LBL.BCK.CVR.ASSY (TV) (WO/UL)SHARP	AA	AC
	.	20151372	LBL.BCK.CVR.SHARP 21LS90S(AK44)	AA	AC
	.	20156164	LBL.CART.BOX SHARP 21LS90S (AK44)	AA	AD
	.	35000158	NUT C ZN BOTTOM M3	AA	AB
	.	35000165	KNURL WASHER C ZNSY 3*6*04 (M3)	AA	AB
	.	35000180	SCREW C ZN YSMB M3*6	AA	AA
	.	35000181	SCREW C ZN YSMB M3*8	AA	AB
	.	35000182	SCREW C ZN YSMB M3*10	AA	AA
	.	35000224	SCREW C SK ZN YFMB 2.9*9.5	AA	AB
	.	35004572	SCREW P C AgSYF YSB 4x20	AA	AB
	.	35005084	SCREW C ZN RYAKB 6x30	AA	AB
	.	35008081	SCREW P C ZN YFMB 3*9.5	AA	AA
	.	40016815	LOGO SHARP (D.C.-SILVER)21"SF SHARP	AC	AH
	.	50048040	LABEL EHT/27.8KV BEAM/1150UA(GER)	AA	AB
	.	50048171	CARTON BOX SHARP SHARP (2162)	AL	AX
	.	50049583	I/B SHARP 21LS90S P/AK44/1548/GER/DUT/FR	AD	AM
			COSMETICS		
⚠	.	20140407	BACK CVR.2162SF EKO2GRAY (I) (AK44)	AR	BB

	REF No.	PARTS	DESCRIPTION	SN CODE	EX CODE
	.	20140426	SNOW BOX TOP 2162SF SHARP	AA	AA
	.	20140427	SNOW BOX BOTTOM 2162SF SHARP	AA	AA
	.	20141195	BUTTON ASSY 2162 (SILVER/O.BLUE)	AD	AN
	.	20141196	SNOW BOX ASSY 2162	AL	AX
	.	20151662	FRONT 2162 W/H SLV285S(P)(PW/STR/S)2SPK	AS	BD
	.	20069673	FIRE BARRIER (1) (NATURAL-V.O.)	AA	AC
	.	40012331	RUBBER PAD (RC 1542)	AD	AL
	.	40016859	RUBBER WASHER 2163RF (I) SHARP	AA	AB

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